

Alcatel 1905 LMI

Up to 20 mW WDM L-band version for external modulation

CW 1.55 µm Laser Module with optical Isolator

Description

This laser module contains an Alcatel SLMQW DFB laser and is designed for use with external modulation optimized for high power Wavelength Division Multiplexed (WDM) systems. The module incorporates a polarization maintaining fiber pigtail, thermoelectric cooler, precision thermistor, and optical isolator for stable operation under all conditions.

Features

- Up to 20 mW output power
- Wavelength selection according to ITU-T G.692 (L-band)
- 50 GHz spacing available

- Optimized for use with LiNbO₃ external modulator
- Polarization maintaining fiber pigtail
- InGaAsP Distributed FeedBack SLMQW (DFB) laser
- Integral optical isolator
- Internal TEC and monitor photodiode
- Industry-standard hermetic 14-pin butterfly package



Applications

- Ultra long haul DWDM synchronous digital transmission systems
- WDM submarine terminal digital transmission systems
- Instrumentation.

Optical characteristics

Parameter	Symb.	Conditions	Min	Typical	Max	Units
Threshold current	I _{th}			40		mA
Output power	P _f	Twave = 15 to 30 °C	10			mW
		Twave = 15 to 25 °C	20			mW
Forward voltage	V _f	Pf, pin 3 & 11		2.5		V
Laser forward current	I _f	10 mW, pin 3 & 11		120		mA
		20 mW, pin 3 & 11		210		mA
Emission wavelength	λ _m			See table 1		
Δ(Emitted-Target) Wavelength	Δλ _e	@Tchip[2]	- 0.1		+ 0.1	nm
Laser chip temperature range for tunability	T _λ	@10mW [2]	15		30	°C
		@20mW [2]	15		25	°C
Spectral width	Δλ	CW, Pf, FWHM		5		MHz
Side mode suppression ratio	SMSR	Pf	35			dB
Relative Intensity Noise	RIN	10MHz to 10 GHz @ Pf		-140		dB/Hz
Photodiode dark current	I _d	V = - 5 V		100		nA
Wavelength drift vs Tcase	Δλ/ΔTc			0.5		pm/°C
Thermistor resistance	R _{TH}		9.7		10.3	k Ω
Thermistor temperature coefficient	R _t		- 3		- 5	%/K
TEC current	I _t	[1]		1.3		A
TEC voltage	V _t	[1]		2.5		V
TE/TM fiber extinction ratio of pigtail	Er		20			dB

Note : All limits start of life (except I_t, V_t), Tsubmount = 25 °C, Tcase = 25 °C, Pf = 20 mW, monitor bias = 5 V, unless otherwise stated

[1] Tcase = 70° C, Tsubmount = 20 °C, P = 20 mW

[2] Tchip = T_λ. T_λ is chip temperature required to meet target wavelength (see table 1)

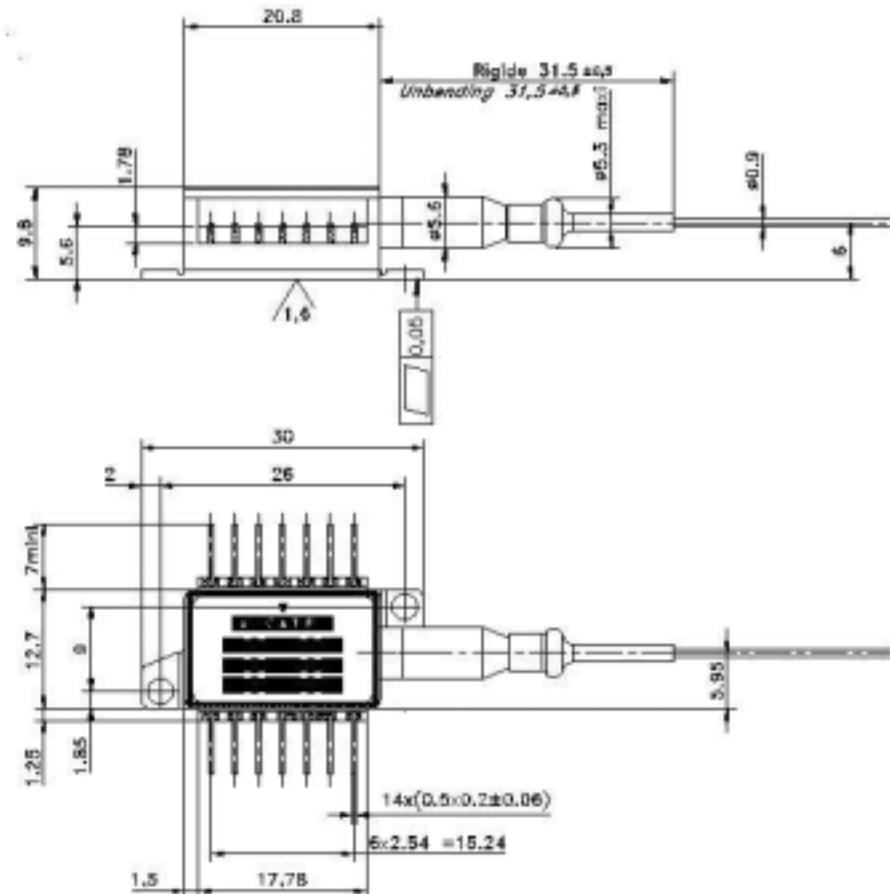
Absolute maximum ratings

Parameters	Min	Max	Unit
Operating case temperature	-10	70	°C
Storage temperature	-40	85	°C
Laser forward current		350	mA
Laser reverse voltage	2		V
Photodiode forward current	1		mA
Photodiode reverse voltage	20		V
TEC Voltage	2.8		V
TEC Current	1.4		A
Lead soldering time (at 260°C)	10		s
Packing Mounting Screw Torque	0.2		Nm

[1] Human body model.

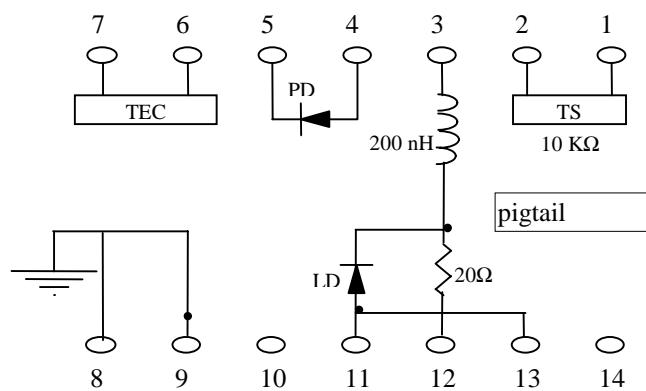
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only.

Mechanical details



Pin out

N°	Description	N°	Description
1	Thermistor	8	Case Ground
2	Thermistor	9	Case Ground
3	Laser DC bias (-)	10	Not Connected
4	Photodetector Anode (-)	11	RF common (+)
5	Photodetector Cathode (+)	12	RF input (-)
6	TEC (+)	13	Not Connected
7	TEC (-)		



▼
ALCATEL

Ordering information

Alcatel 1905 LMI

Nominal power	Connector type	Part number [1]
10 mW	FC/PC or FC/APC	3CN 00386 ##
10 mW	SC/PC	3CN 00461##
20 mW	FC/PC or FC/APC	3CN 00410 ##
20 mW	SC/PC	3CN 00462 ##

defines the wavelength and the connector according to table 1.

λ	THz	Connector		
		FC/PC	FC/APC	SC/PC
1570,00	190,95	FV	RV	
1570,41	190,90	FW	RW	
1570,82	190,85	FX	RX	
1571,24	190,80	FY	RY	
1571,65	190,75	FZ	RZ	
1572,06	190,70	GA	SA	
1572,47	190,65	GB	SB	
1572,88	190,60	GC	SC	
1573,30	190,55	GD	SD	
1573,71	190,50	GE	SE	
1574,12	190,45	GF	SF	
1574,54	190,40	GG	SG	
1574,95	190,35	GH	SH	
1575,36	190,30	GJ	SJ	
1575,78	190,25	GK	SK	
1576,19	190,20	GL	SL	
1576,61	190,15	GM	SM	
1577,02	190,10	GN	SN	
1577,44	190,05	GP	SP	
1577,85	190,00	GR	SR	
1578,27	189,95	GS	SS	
1578,68	189,90	GT	ST	
1579,10	189,85	GU	SU	
1579,51	189,80	GV	SV	
1579,93	189,75	GW	SW	
1580,35	189,70	GX	SX	
1580,76	189,65	GY	SY	
1581,18	189,60	GZ	SZ	
1581,60	189,55	HA	TA	
1582,01	189,50	HB	TB	
1582,43	189,45	HC	TC	
1582,85	189,40	HD	TD	
1583,27	189,35	HE	TE	

λ	THz	Connector		
		FC/PC	FC/APC	SC/PC
1583,69	189,30	HF	TF	
1584,10	189,25	HG	TG	
1584,52	189,20	HH	TH	
1584,94	189,15	HJ	TJ	
1585,36	189,10	HK	TK	
1585,78	189,05	HL	TL	
1586,20	189,00	HM	TM	
1586,62	188,95	HN	TN	
1587,04	188,90	HP	TP	
1587,46	188,85	HR	TR	
1587,88	188,80	HS	TS	
1588,30	188,75	HT	TT	
1588,72	188,70	HU	TU	
1589,14	188,65	HV	TV	
1589,56	188,60	HW	TW	
1589,98	188,55	HX	TX	
1590,41	188,50	HY	TY	
1590,83	188,45	HZ	TZ	
1591,25	188,40	JA	UA	
1591,67	188,35	JB	UB	
1592,10	188,30	JC	UC	
1592,52	188,25	JD	UD	
1592,94	188,20	JE	UE	
1593,37	188,15	JF	UF	
1593,79	188,10	JG	UG	
1594,21	188,05	JH	UH	
1594,64	188,00	JJ	UJ	
1595,06	187,95	JK	UK	
1595,49	187,90	JL	UL	
1595,91	187,85	JM	UM	
1596,33	187,80	JN	UN	
1596,76	187,75	JP	UP	
1597,19	187,70	JR	UR	

λ	THz	Connector	
		FC/PC	FC/APC SC/PC
1597,61	187,65	JS	US
1598,04	187,60	JT	UT
1598,46	187,55	JU	UU
1598,89	187,50	JV	UV
1599,32	187,45	JW	UW
1599,74	187,40	JX	UX
1600,17	187,35	JY	UY
1600,60	187,30	JZ	UZ
1601,02	187,25	KA	VA
1601,45	187,20	KB	VB
1601,88	187,15	KC	VC
1602,31	187,10	KD	VD
1602,74	187,05	KE	VE
1603,16	187,00	KF	VF
1603,59	186,95	KG	VG
1604,02	186,90	KH	VH
1604,45	186,85	KJ	VJ
1604,88	186,80	KK	VK
1605,31	186,75	KL	VL
1605,74	186,70	KM	VM
1606,17	186,65	KN	VN
1606,60	186,60	KP	VP
1607,03	186,55	KR	VR
1607,46	186,50	KS	VS
1607,89	186,45	KT	VT
1608,32	186,40	KU	VU
1608,76	186,35	KV	VV
1609,19	186,30	KW	VW
1609,62	186,25	KX	VX
1610,05	186,20	KY	VY

Table 1, All wavelengths referenced to vaccum @ Tsubmount

Standards
 ITU-T G.652 optical fiber
 IEC 68-2 and MIL STD 883 environment



October 00
 Copyright © 2000
 Alcatel Optronics

Customized versions
 are available for
 large quantities.

Performance figures contained
 in this document must be
 specifically confirmed in
 writing by Alcatel Optronics
 before they become applicable
 to any particular order or
 contract. Alcatel Optronics
 reserves the right to make
 changes to the products or
 information contained herein
 without notice.

EUROPE
 Route de Villejust
 F-91625 NOZAY CEDEX
 Tel : (+33) 1 64 49 49 10
 Fax : (+33) 1 64 49 49 61

USA
 12030 Sunrise Valley Drive
 RESTON - VA 20091
 Tel : (+1) 703 715 3921
 Fax : (+1) 703 860 1183

CANADA
 45, De Villebois, suite 200
 Gatineau (PQ)
 Canada, J8T 8J7
 Tel : (+1) 819 243 3755
 Fax : (+1) 819 243 3354

JAPAN
 Yebisu Garden Place Tower
 PO Box 5024
 20-3, Ebisu 4 - Chome
 Shibuya - ku TOKYO 150 - 6028
 Tel : (+81) 3 5424 85 65
 Fax : (+81) 3 5424 85 81